

REMARKS

This communication is being made in response to the Office Action having a mailing date of November 17, 2004. The pending claims are not presently being amended herein. With this response, claims 1-22 are pending in the application.

In the Office Action, the Examiner has rejected claims 1-7 and 10-22 under 35 U.S.C. § 103 as being unpatentable over the combination of an article by Chamberlain in view of Ohde et al. (U.S. Patent No. 5,511,207). The Examiner has also rejected claims 8-9 as being unpatentable over Chamberlain et al. in view of Charles et al. (US Patent No. 6,314,564). For the reasons set forth below, the applicants respectfully disagree with these rejections and request that the pending claims be allowed.

A disclosed embodiment will now be discussed in comparison to the applied references. Of course, the discussion of the disclosed embodiment, and the discussion of the differences between the disclosed embodiment and subject matter described in the applied references, do not define the scope or interpretation of any of the claims. Instead, such discussed differences are intended to merely help the Examiner appreciate important claim distinctions discussed thereafter.

As explained in the previously filed amendment, one embodiment of the present invention provides a linker for creating an executable program from object code modules. The linker uses a linker control language (LCL), which is made up of a sequence of "relaxation instructions." Each relaxation instruction has associated with it a unique instruction count. One type of relaxation instruction defines relocation operations, and another controls linker operations.

In the Office Action, the Examiner has stated that independent claims 1, 10, 18, 19 and 22 are obvious over Chamberlain in view of Ohde. The Examiner has acknowledged on page 4 of the Office Action that Chamberlain does not disclose the use of an ordered sequence of instruction counts, but asserts that it would have been obvious to modify the invention in Chamberlain to incorporate the teachings of Ohde.

Ohde discloses a system to reduce the number of instructions needed to be executed in a CPU processing unit to repeat a number of program operations. This is done by utilizing a single bit in an instruction code to indicate that a counter should be decremented or

incremented, thereby saving the need for a separate instruction. Ohde does disclose that a sequence of instructions is read from a memory, for execution on the CPU. However, Ohde is only concerned with the manner in which a repeated number of program operations are executed on a microprocessor. This therefore relates to a modification in low-level machine code instructions, in order to optimize the running of the program. Ohde makes no mention of linking object code or relaxation instructions. As such, Ohde is directed to a different technical problem, and there is nothing to motivate the person skilled in the art to utilize these teachings in a linker.

Furthermore, since Chamberlain makes no indication that there could be any advantage to be gained by utilizing a sequence of instruction counts in the linker, and does not state that there is any technical problem that could be solved through the use of such a sequence of counts, it would not be obvious for the person skilled in the art to combine these references to result in the invention of claim 1 and the other independent claims.

Independent claims 1, 10, 18, and 22 recite the ordered sequence of instruction counts. Because this feature as claimed is not disclosed, taught, or suggested by Chamberlain or Ohde, either singly or in combination, these claims in their present form are allowable.

Additionally, the Examiner maintains that Chamberlain teaches the feature of the jump relaxation instruction in claims 1, 18 and 19. Again, the applicants argue that this is not the case. Since it is admitted by the Examiner that Chamberlain does not include a sequence of instruction counts, jump relaxation instructions cannot be a feature of Chamberlain, as a jump instruction requires an instruction count in order to know where to jump to. Instead, the jump instructions cited in Chamberlain form part of a different operation, and are not themselves relaxation instructions, as described below.

As outlined on page 6, lines 6-18 of the present application, a linker links a number of object code modules together to form an executable program. The object code modules contain the low-level language equivalent of the source code (*e.g.*, in a language that can be directly executed on the microprocessor). Linkers also perform optimizations on the low-level code in the object code modules as they are linked. The operations referred to in Chamberlain under the '--relax' command are part of these optimizations. It is stated on page 49, line 9 of Chamberlain that the operations are "global optimizations." These are optimizations to the low-level code of the program, and not instructions to the linker. In particular, it is stated

on page 49, line 12 of Chamberlain that "ld finds all jsr and jmp instructions whose targets are within eight bits, and turns them into eight-bit program-counter relative bsr and bra instructions, respectively." In other words, the ld linker of Chamberlain is searching for jsr and jmp low-level code commands in the executable program code and replacing these instructions with bsr and bra instructions where appropriate. Therefore, ld is optimizing the executable program code itself.

In contrast, the jump relaxation instructions of the present invention are not doing this. As is clearly stated in claim 1 "where said relaxation instruction is a jump instruction, a next relaxation instruction which is read is that of the instruction count specified in the jump relaxation instruction." Therefore, the present invention is using the jump relaxation instruction to control how the linker reads the relaxation instructions. This does not have anything to do with the actual executable low-level language code. The jump relaxation instructions of claim 1 (for example) and a jmp or jsr low-level language instruction of Chamberlain are conceptually distinct.

On the basis of the above discussion, the recitations of the jump relaxation instructions in independent claims 1, 18 and 19 are not disclosed, taught, or suggested by Chamberlain or any of the other cited references. Therefore, these independent claims are in allowable form.

Adding the reference of Charles to Chamberlain and/or Ohde does not cure the deficiencies of these references. Charles has been cited merely for "accessing a stack." There is nothing in Charles that supplies the missing teachings of Chamberlain and Ohde as described above. Accordingly, the claims are allowable over Charles, Ohde, and Chamberlain, either singly or in combination.

On page 3 of the present Office Action, the Examiner indicated that Chamberlain is being treated as having a date of March 16, 1999 since this is the date provided by the applicants in the prior-filed Information Disclosure Statement (IDS). While the applicants acknowledge that this is the date they provided in the IDS, the applicants do not admit or concede that this is in fact the actual date of publication of the article. Rather, this is the date that the particular article was "generated," and the actual publication date may be different. Therefore, the applicants reserve the right to predate or otherwise prove, if necessary in the

future, that Chamberlain has a publication date that is different than the March 19, 1999 date or that Chamberlain does not qualify as prior art.

Overall, none of the references singly or in any motivated combination disclose, teach, or suggest what is recited in the independent claims. Thus, given the above amendments and accompanying remarks, the independent claims are now in condition for allowance. The dependent claims that depend directly or indirectly on these independent claims are likewise allowable based on at least the same reasons and based on the recitations contained in each dependent claim.

If the applicants' attorney has overlooked a teaching in any of the cited references that is relevant to the allowability of the claims, the Examiner is requested to specifically point out where such teaching may be found. Further, if there are any informalities or questions that can be addressed via telephone, the Examiner is encouraged to contact the applicants' attorney Dennis M. de Guzman at (206) 622-4900.

The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090.

All of the claims remaining in the application are now clearly allowable.  
Favorable consideration and a Notice of Allowance are earnestly solicited.

Respectfully submitted,

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